

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 February 2001 (01.02.2001)

PCT

(10) International Publication Number
WO 01/08176 A1

(51) International Patent Classification⁷: **H01F 41/32,**
G11B 5/31

B., A., D. [NL/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(21) International Application Number: **PCT/EP00/06817**

(74) Agent: **SCHRIJNEMAEKERS, Hubert, J., M.;** Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(22) International Filing Date: **17 July 2000 (17.07.2000)**

(25) Filing Language: **English**

(81) Designated States (*national*): **CN, JP, KR, SG, US.**

(26) Publication Language: **English**

(84) Designated States (*regional*): **European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).**

(30) Priority Data:
99202417.4 **22 July 1999 (22.07.1999)** **EP**

Published:

- *With international search report.*
- *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

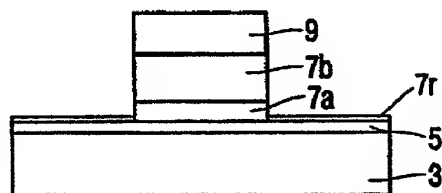
(71) Applicant (*for all designated States except US*): **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL];**
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **VAN ZON, Joannes,**

(54) Title: **METHOD OF MANUFACTURING A MAGNETIC TUNNEL JUNCTION DEVICE**



(57) Abstract: A method of manufacturing a magnetic tunnel junction device, in which a stack (1) comprising two electrode layers (3, 7) and a barrier layer (5) extending in between is formed. One of the electrode layers is structured by means of etching, in which, during etching, a part of this layer is made thinner by removing material until a rest layer (7r) remains. This rest layer is subsequently removed by means of physical etching, in which at least substantially charged particles have a motion energy which is between the sputtering threshold of the magnetic material of the rest layer and the sputtering threshold of the non-magnetic material of the barrier layer. In the relevant

method, it is prevented that the electrode layer which is not to be structured is detrimentally influenced during structuring of the other electrode layer.

WO 01/08176 A1

WO 01/08176 A1